

end a single undivided plate. Also no mention is made of the fact that in *Physokermes* the opercula are wanting in the adult female, in fact (p. 175) it is said that the adult female has the "opercula prominent, swollen, dorsal in position." The structures referred to are not the opercula, which are lacking in this stage.

Concerning the Asterolecaniinae I shall note only that to it is referred the genus *Olliffiella*. I reaffirm the opinion which I have formerly expressed, that this species is closely related to *Kermes* and should accompany the latter wherever it may be placed.

The subfamily Kermesinae is based upon the single genus *Kermes*. As I have previously indicated I regard this genus as strictly Eriococcine, and see no reason for the subfamily Kermesinae. I may note that MacGillivray's statement (p. 191) that the anal ring is wanting in the adult female is erroneous. In *K. cockerelli*, *kingii*, *nigropunctatus* and *vermilio*, at least, the anal ring is well developed in the adult female, although it bears no setae.

(To be continued.)

## A SYNOPSIS OF THE NORTH AMERICAN SPECIES OF THE GENERA MELANOCHELIA RONDANI AND LIMNOPHORA R.-D. (DIPTERA, ANTHOMYIIDÆ.)

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This group is the *Limnophora* of authors, the name *Limnophora* being applicable to the species which have the prosternum and base of third vein setulose; the other segregate requires a change of name and apparently Rondani's name must be used.

The species of *Melanochelia* occur most commonly in the north and usually along the margins of lakes or streams. *Limnophora* occurs more commonly in the south, many species being found in the tropics throughout the world, and even very frequently on small islands far removed from the large land masses. The larvæ are, so far as I know, aquatic.

### **Melanochelia Rondani.**

#### KEY TO SPECIES.

1. Thorax with four pairs of postsutural dorsocentral bristles; halteres yellow (cf. *obsoleta*).....2.
- Thorax with four pairs of postsutural dorsocentral bristles; halteres black or brown.....13.
- Thorax with three pairs of postsutural dorsocentral bristles.....19.
2. Orbital hairs descending much below level of base of antennæ; facial ridges haired about midway to base of antennæ; basal abdominal sternite haired.....*Lispoides aequalis* (Stein).
- Orbital hairs not descending below base of antennæ.....3.
3. Basal abdominal sternite with some setulose hairs; fourth wingvein usually slightly curved forward at apex.....*Eulimnophora* Malloch.
- Basal abdominal sternite bare.....4.
4. Eyes of male separated by much less than distance across posterior ocelli; sternopleurals 1:1; anterior acrostichals in two series; hind tibia with one anterodorsal and one anteroventral bristle.....*torreyæ* Johannsen.

- Eyes of male separated by as great a distance as width across posterior ocelli; characters not in all respects as above.....5.
- 5. Males.....6.
- Females.....11.
- 6. Calyptrae dark brown; eyes separated by one-third of the head-width; frons velvety black; hind femur with bristles on entire length of posteroventral surface.....*velutina* Malloch.
- Calyptrae whitish or yellowish; species not as above in other respects.....7.
- 7. Small species, not over 4 mm. in length, densely white pruinose; presutural acrostichals strong, two-rowed; females of known species without paired spots on abdomen, and the genitalia with two or four short thorns at apex.....8.
- Larger species, over 5 mm. in length, brownish gray pruinose; presutural acrostichals in at least three series; females without thorns on genitalia.....9.
- 8. Fourth abdominal tergite distinctly longer than third; cheek but little higher than width of parafacial at base of antenna; abdomen silvery, third tergite without paired spots.....*argentiventris* Malloch.
- Fourth abdominal tergite not longer than third; cheek twice as high as width of parafacial at base of antenna; abdomen whitish gray, not silvery, third tergite with a pair of small spots.....*brevicornis* Malloch.
- 9. Hind femora with long bristles on antero- and posteroventral surfaces, those on the latter finer than on the former, and not extending to base.....*novæ-anglæ* Malloch.
- Hind femora with at most very short bristles on posteroventral surface, those on anteroventral long and strong, but confined to apical half....10.
- 10. Hind femur with a number of short, erect bristles on median portion of posteroventral surface; eyes separated by less than width across posterior ocelli; each orbit as wide as interfrontalia ...*gibsoni* Malloch.
- Hind femur without median posteroventral bristles; eyes separated by width across posterior ocelli; each orbit about half as wide as interfrontalia.....*monticola* Malloch.
- 11. Lower calyptra hardly protruding beyond upper; costal setulæ longer than diameter of costal vein.....*obsoleta* Malloch.
- Lower calyptra projecting much beyond upper; costal setulæ not as long as diameter of costal vein.....12.
- 12. Small species, not over 4 mm. in length; thorax and abdomen with grayish white pruinoscence, without dorsal spots; genitalia of female with some strong apical thorns.....*brevicornis* Malloch.
- Larger species, averaging over 5 mm. in length; thorax and abdomen with brownish pruinoscence, the former vittate, the latter with paired dorsal spots.....*nobilis* Stein.
- 13. Presutural acrostichals consisting of two very closely placed, rather irregular series of short setulæ; abdomen with a linear dorsocentral black vitta and black paired dorsal spots; basal segment of hind tarsus a little less than half as long as hind tibia; basal separation of antennæ linear.....*tetrachata* Malloch.
- Presutural acrostichals consisting of four or more series of fine hairs;



- abdomen with paired dorsal spots which are sometimes fused or without distinct spots, and never with a dorsocentral vitta.....14.
14. Calyptræ exceptionally small, the lower one not twice as large as the upper; abdomen with the dorsal spots so greatly enlarged as to cover the entire dorsum except the extreme posterior margin of each tergite; costal hairs setulose, very distinctly longer than diameter of costal vein; vibrissal angle not noticeably produced beyond line of base of antennæ.....*obsoleta* Malloch.
- Calyptræ large, the lower one twice as large as the upper; abdomen with distinct paired dorsal spots; costal setulæ minute; if the abdomen is indistinctly spotted the vibrissal angle is produced much beyond a vertical line drawn from base of antennæ.....15.
15. Vibrissal angle but little produced, almost in vertical line with base of antennæ.....16.
- Vibrissal angle very conspicuously produced beyond vertical line from base of antennæ.....17.
16. Small species, not 4 mm. in length; abdomen unspotted, the entire body with whitish pruinescence; genitalia with 4 short thorns.....*brevicornis* Malloch.
- Larger species at least 5 mm. in length; abdomen with large black paired spots, the entire body with brownish pruinescence.....*nobilis* Stein.
17. Hind femur with 4 or 5 moderately stout, long bristles on apical two-fifths of anteroventral surface; last section of fourth vein three times as long as preceding section; veins 2 and 4 up to outer cross-vein and both cross-veins tinged with brown along their courses.....*pearyi* Malloch.
- Hind femur with long, hair-like bristles from base to apex on anteroventral surface; last section of fourth vein less than twice as long as preceding section; veins not tinged with brown.....18.
18. Large species, at least 6 mm. in length; female orbits with rather dense bristly hairs laterad of the bristles; the hairs almost as long as the bristles; wings of male rather pointed at apices.....*angulata* Malloch.
- Smaller species, not over 4.75 mm. in length; female with short sparse hairs laterad of the bristles on orbits; wings of male rounded at apices.....*extensa* Malloch.
19. Calyptræ dark brown; wings distinctly infuscated; eyes of male separated by much less than width across posterior ocelli.....*anthrax* Bigot.
- Calyptræ whitish; halteres yellow; wings usually clear.....20.
20. Eyes separated by almost one-third of the head-width; hind femur without posteroventral bristles; the paired dorsal abdominal spots with a connecting brown patch between them.....*caroli* Malloch.
- Eyes separated by much less than one-third of the head-width; abdominal dorsal spots not as above.....21.
21. Hind tibia with one or more setulæ at or near middle on posterodorsal surface.....22.
- Hind tibia without setulæ on posterodorsal surface.....27.
22. Tibiæ pale, reddish; wings clear, veins pale; abdomen narrow, cylindrical, the dorsal spots of moderate size, widely separated; fore tibia with a median posterior bristle.....*suspecta* Malloch.

- Tibiæ black; wings usually infuscated, more distinctly so basally, veins black; abdomen ovate except in *alticola*, the dorsal spots large, separated by a linear space; fore tibia without a median posterior bristle except in *alticola*.....23.
- 23. Eyes separated by more than twice the width across posterior ocelli; hind femur with long bristly hairs on basal half of posteroventral surface....24.
- Eyes separated by less than twice the width across posterior ocelli.....25.
- 24. Fifth abdominal sternite with a chitinous protuberance near apex on each side of posterior excavation; mid femur without strong bristles at base on posteroventral surface.....*acuticornis* Malloch.
- Fifth abdominal sternite without such protuberance; mid femur with strong bristles on basal half of posteroventral surface.....*surda* Zetterstedt?.
- 25. Abdomen cylindrical, slightly tapered apically; hind femur with long bristly hairs on basal half of posteroventral surface; eyes separated by more than width across posterior ocelli.....*alticola* Malloch.
- Abdomen ovate; hind femur without long bristly hairs on posteroventral surface; eyes separated by less than width across posterior ocelli.....26.
- 26. Fifth abdominal sternite with sparse setulose hairs laterad and distad of base of posterior excision; abdominal dorsal spots separated by a linear space.....*magnipunctata* Malloch.
- Fifth abdominal sternite with very dense short setulæ laterad and distad of base of posterior excavation; the dorsal abdominal spots on third and fourth tergites rather widely separated, much more so than those on second.....*imitatrix* Malloch.
- 27. Thorax when viewed from behind with the anterior half of disc brownish black, the posterior half densely gray pruinose; abdominal dorsal spots narrow, elongate, sometimes linear; mid tibia without an anterodorsal bristle; hind femur unarmed on posteroventral surface.....*clivicola* Malloch.
- Thorax deep black when viewed from behind, only the posterior margin grayish pruinose; abdominal dorsal spots large and broad; mid tibia with one or more anterodorsal bristles; hind femur with some short, stout bristles on median third of posteroventral surface.....*gibsoni* Malloch.

### **Limnophora** Robineau-Desvoidy.

#### KEY TO SPECIES.

- 1. Fifth abdominal sternite in male much longer than fourth; male hind femur incrassated at base and apex.....*incrassata* Malloch.
- Fifth abdominal sternite in male not longer than fourth; femora normal..2.
- 2. Eyes of male narrowly separated, the frons not wider than third antennal segment; first posterior cell of wing much narrowed apically.....*narona* Walker.
- Eyes of male separated by more than width of third antennal segment; first posterior cell of wing almost imperceptibly narrowed apically....3.
- 3. Female with an anterodorsal bristle on mid tibia.....*groenlandica* Malloch.
- Female without an anterodorsal bristle on mid tibia.....*discreta* Stein.